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EXAMINER

PALABRICA, RICARDO J

ART UNIT	PAPER NUMBER
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3641

DATE MAILED: 02/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/748,691

Applicant(s)

SWARTZ, MITCHELL R.

Examiner

Rick Palabrica

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5-8,10-14 and 21-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5-8,10-14 and 21-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Applicant's Amendment C in Paper No. 14, dated 12/9/02, is acknowledged. This amendment submitted a copy of the Abstract, revised the specification and specific claims, deleted claims 2, 3, 4 and 9, added new claims 21-30, and traversed the rejection of previously examined claims. This amendment is in response to Office Action dated 7/5/02.

2. The Examiner stated in said Office Action that the current application does not qualify as a continuation of S/N 09/760,970 because of differences in subject matter covered. Applicant addressed this problem by deleting references to "fuel cells" and deleting "pressure" in the term "pressure-loaded" metals in the statement of relevance of the claimed invention. With this change, the current application can qualify as a continuation of S/N 09/760,970.

3. As to the rejection of claims because of indefiniteness, applicant alleged that "the Examiner could not have made the rejection under 35 U.S.C. 102 of claims over Westfall, Cedzynska, Edwards, Sadoway, Van Noorden, or Dufour, had the invention truly been without definiteness." This allegation has questionable basis. The claims were indefinite but they had to be examined because of the provision in MPEP 2106.II, which states,

"Under the principles of compact prosecution, each claim should be reviewed for compliance with every statutory requirement for patentability in the initial review of the

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application, even if one or more claims are found to be deficient with respect to some statutory requirement.”

4. As to Applicant's traverse of claim rejections under 35 U.S.C. 112, first paragraph, and 35 U.S.C. 101, and objections to the specification under 35 U.S.C. 112, first paragraph, the Applicant has repeatedly cited S/N 07/760,960 and the arguments, publications and declarations in support of said application (e.g., see pages 41, 42, 57, 73 and 74 of the Amendment).

Applicant also alleges that the “Examiner deviates from the present invention and refers to other art, far from the original specification and claims.” Applicant further alleges that “It is only by calling the present invention ‘cold fusion’, instead of a method which includes in combination loading an isotopic fuel into a material by an applied electric field, and then at a later point in time a second applied electric field to distribute said isotopic fuel within said material, means to control the distribution of the loaded isotopic fuel within the material, means including barriers impermeable to the flow of said isotopic fuel within said material and means to extract product using magnetic field inhomogeneity, based differential magnetic susceptibilities, that the Examiner can purport that the heat measurement is ‘unattainable’ and continue the Examiner’s unfounded attack on the Applicant with his deliberate misreading of specification and claims as his segue to much less relevant art attacking “FP” (for Drs. Fleischmann and Pons).

The Examiner disagrees for several reasons.

First, the Examiner's rejections of claims and objections to the specification were based on examination of their technical merits using published references (e.g., patents and technical documents), as well as, applicable Patent Office procedures. The examination focused on the information presented in the application, and the conclusions were based on the Examiner's technical evaluation of the case. The records will show that all of the Examiner's arguments were completely technical, professional and impersonal. If the Applicant mistakenly construes the technical rejections made by the Examiner as a personal "attack" on him, which is totally baseless, not much can be done about this except to express the Examiner's sympathy.

Second, the Applicant objected to having his invention called "cold fusion" because of limitations he cited as distinguishing features. However, such apparatus features as: a) means to control the distribution of the loaded isotopic fuel within the material; b) means including barriers impermeable to the flow of said isotopic fuel within said material; c) means to extract product using magnetic field inhomogeneity **are not recited in the claims that are all method claims**. Note that although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Third, on the issue of "cold fusion", the Applicant's parent application, S/N 07/760,960, recites in the preamble, "The present application pertains to methods and systems to control cold nuclear fusion." In claim 1, he refers to "a process for producing a nuclear fusion product from isotopic fuel using a material." In claim 3, he defines "nuclear product" as "a member of the group consisting of heat energy and tritium."

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This definition is acceptable because the applicant may be his or her own lexicographer.

See *In re Hill*, 161 F.2d 367, 73 USPQ 482 (CCPA 1947).

In the current application the Applicant does not define the product(s) of the claimed process. (Note that this issue of indefiniteness was cited in the previous Office Action but remains unresolved). In claims 1, 10 and 21, Applicant refers to a "product using a metal loaded with an isotopic fuel", or "product using a material by a reaction." Therefore, this "product " cannot be an isotope-loaded metal or a material by reaction since it is used to produce the "product." The specification contains several references to the production of "desired reactions" with the isotopic fuel (e.g., deuterium) upon full charging of the cathode with deuterons. In particular, the specification on page 2, identifies these "desired reactions" as electrochemically-induced, nuclear fusion reactions in metals. Hence, the Examiner concludes that the only possible "products", which can be formed in the claimed invention, are **nuclear fusion products**.

Additionally, the specification on page 3, lines 1 and 2, on page 7, top paragraph, refers to the generation of "excess heat", by the desired reactions of the isotopic fuel (e.g., deuterium) in the loaded cathode metals. The generation of excess heat has been known in the art as "cold fusion". Clearly, the "product" of the current claimed invention must be the same as the product of "cold fusion" in the parent case, S/N 07/760,960.

In view of the above, one having ordinary skill in the art would have recognized that the applicant's claimed invention, and the methods in the cited cold fusion references are in the same field of endeavor, and the Examiner's use of said references in the examination of the claims are valid and reasonable. Furthermore, most of the

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additional references provided by the Applicant as part of the Amendment are in the "cold fusion" art.

Review of the records of prosecution of S/N 07/760,970 indicates that another Examiner rejected the claims in the invention. The Applicant appealed this decision. However, a Federal Appeals Court in 00-108 affirmed the rejection for lack of operability under 35 U.S.C. 101 and lack of enablement under 35 U.S.C. 112, first paragraph.

Note that the current application is a continuation of S/N 07/760,970. MPEP 201.07 states: "The disclosure presented in the continuation must be the same as that of the original application; i.e., the continuation should not include anything which would constitute new matter if inserted in the original application." The applicant himself admits that his current application, as amended, does not introduce new matter, such that it qualifies as a continuation application (see page 8 of Amendment). Clearly, since the current case is a continuation of and has the same subject matter as S/N 07/760,970, by definition and by Applicant's own admission, then the Federal Appeals Court in 00-108 judgment lack of operability and enablement of S/N 07/760,970 would apply to the current application. Additionally, as discussed below, the Applicant himself has made statements about "cold fusion" that have raised questions on operability "cold fusion" and reproducibility of results.

5. The amendment is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new

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matter into the disclosure of the invention. The added material, which is not supported by the original disclosure, is as follows:

- Patent Applications 08/406,457 and 09/573,381 shown underlined under "U.S. Patent Documents" on page 103, all references shown underlined under "Other Publications" on pages 104 and 105, as well as all citations to these references in the revised specification.
- Change from "inhomogeneous" to "spatially homogeneous", shown as underlined in amended claims 8 and 13.
- Change from "control the production of said product" to "redistribution of isotopic fuel into said material" as recited in the amended claim 10.
- Recitation of "redistribution of said isotopic fuel impact a barrier impermeable to said isotopic fuel" (e.g. see new claims 24, 26 and 28).

Applicant is required to cancel the new matter in the reply to this Office Action.

Specification

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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6. The Specification is objected to under 35 U.S.C. 112, first paragraph, as failing to provide an adequate written description of the invention and as failing to adequately teach how to make and /or use the invention, i.e., failing to provide an enabling disclosure.

Applicant's arguments are unpersuasive in view of the reasons stated in section 4 above and those given below.

The Examiner has established in section 4 that the Applicant's invention is in the field of "cold nuclear fusion."

In Ref. V1, when asked whether the issue of neutron production in cold fusion has been resolved, the Applicant replied that "neutronpenic levels can occur intermittently under some conditions." As correctly observed by the inquirer, "intermittently" and "under some conditions" places cold fusion on shaky grounds. Based on this, the disclosure of the current application is insufficient as to: a) what are the specific conditions under which said neutronpenic levels can occur?; b) if said neutronpenic levels occur intermittently, what are the features necessary to ensure they occur and what confidence does one have on the reproducibility of the results, if indeed cold fusion truly occurs? In reply to a later question as to whether there is an established level of tritium production in relation to excess heat, He-4 production, and any other experimental parameter, the Applicant stated that there are "multiple pathways which depend upon material (and other) parameters. Based on this, the disclosure is insufficient as to: a) what are these material properties and what exactly are these "other parameters"; b) when applied to the electrodes in the claimed invention, what are the required purities for the cathode, anode and electrolyte (see page 13 of previous Office Action).

In Ref. W1, an individual noted that the Applicant first made a statement that "cold fusion is real" and then later on stated that "a single experiment demonstrating excess heat is insufficient to convince, but only shows a vector for further diligent work and study. The individual then stated, "to convince me of your (i.e., Applicant's) statement, that cold fusion is real, you need to show me at least one paper reporting clear, convincing, reproduceable, unmistakable heat production."

In Ref. X1, Dick Blue stated on the issue of confirmation of cold fusion results that "four years into this business, it seems we are still counting the simple replications of 'excess heat' and failing to note that none of the replications match in any significant additional details."

In Ref. U2, Rich Murray raised questions about the Applicant's paper, "Consistency of the Biphase Nature of Excess Enthalpy in Solid State Anomalous Phenomena With the Quasi-1-Dimensional Loading Into a Material." Murray noted that for evaluation, details such as exact dimensions and locations of components of the calorimeter are needed. Murray also expressed concern about error ranges being so large. It is noted that the Applicant cited this paper in his response to the Examiner's objection to insufficiency of the disclosure regarding the power supply (see page 105 of the previous Office Action)

In Refs. V2 and W2, Dick Blue lays out why there are problems with the "cold fusion" process.

As to the issue of reproducibility mentioned above, note the following comments by Huizenga (IV) under the heading Reproducibility:

"The foundation of science requires experimental results to be reproducible. Validation is an integral part of the scientific process. Scientists are obligated to write

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articles in ways that allow observations to be replicated. Instructions should be available to permit a competent and well-equipped scientist to perform the experiment and obtain essentially the same results. Replication in science usually is reserved for experiments of special importance or experiments that conflict with an accepted body of work. The greater the implication of an experimental result, the more quickly it will be checked by other scientists.

As more and more groups at major universities and national laboratories were unable to replicate either the claimed excess heat or fusion products, proponents of cold fusion quickly pointed out that the experiment was not done properly: one needed different size palladium cathodes, longer electrolysis times, and higher currents, they claimed.

Whenever the inability of qualified scientists to repeat an experiment is met by ad hoc excuses, beware. One important role of a scientific article is to provide directions for others. Scientists establish priorities for their discoveries by publishing a clear and well-documented recipe of their experimental procedures. If a scientific article fails to include an adequate recipe, which allows a skilled reader to reproduce the experiment, it is a warning that the author's understanding of their work is incomplete.

Cold-fusion proponents introduced new dimensions into the subject of reproducibility in science. Some tried to turn the tables on reproducibility by giving irreproducibility a degree of respectability. A second aberration was to assign a different value to experiments attempting replication. Only experiments that obtain some fragmentary evidence for cold fusion were to be taken seriously because it was declared that experiments obtaining negative results required no special skills or expertise. This viewpoint led proponents of cold fusion to invite mainly papers reporting positive results when organizing conferences. Such an aberrant procedure is incompatible with the scientific process and usually is viewed negatively by scientists as well as journalists."

Note that "reproducibility" must go beyond one's own lab. One must produce a set of instructions, a recipe, which would enable anyone in their own independent lab, to produce the same results. If reproducibility only occurs in one's own lab, errors (such as systematic errors) would be suspect.

As a further issue in regard to reproducibility, experimenters who previously found evidence of excess heat, found no evidence of excess heat when better calorimetric equipment was used (see section 2.2 on page 2 of Morrison (IV) (note that such refers to the work at HVIRA (Japan)).

It is considered elementary that identical structures operated in identical manners, must produce identical results. Such is even relied on in one's everyday life.

If instrumentation, etc., indicates that identical structures operated in identical manners do not produce identical results, clearly, one of two things is implied:

1. The presumed identical structures actually are not identical, i.e. one of said structures actually has something additional, and some critical feature not found in the other said structures, which causes said one of said structures to produce the positive results.

2. The structures actually are identical, however, instrumentation, etc., is producing spurious results leading to the erroneous conclusion that one or even some or all of said identical structures, are producing positive results.

Note again the comments in section 2.2 on page 2 of Morrison (IV) concerning experimenters who had previously found what was considered as being evidence of excess heat but, who subsequently found no evidence of excess heat when they used better calorimetric equipment.

If however, it is actually something additional, some critical feature, which causes some of these cold fusion systems to produce actual, positive results whereas otherwise identical systems do not, then clearly, this "something additional", this critical feature, must be clearly specified so as to enable the artisan to make and use the invention as required by statute.

Reproducibility of the alleged positive cold fusion results is clearly a critical feature in determining if a disclosure adequately teaches the artisan how to make and use an invention for its disclosed purpose.

Accordingly, the logical conclusion when one does not get identical results and/or the results are not reproducible at will in these cold fusion experiments, is that the alleged positive results are not real but instead, they are due to experimental errors, instrumentation errors, misinterpretation of results, etc.

Clearly, when an artisan or experimenter is relying on the experimental results of a particular experiment(s) to establish certain facts, it is incumbent upon the experimenter to show that the alleged experimental results are valid and not just the result of experimental errors (and that the alleged experimental results are valid and not just the results of experimental errors (and that the alleged experimental results do not fall within the limits of experimental errors).

This is especially so when the experiments in question are (as here) in a field wherein the scientific community in general considers the alleged positive experimental results to be erroneous.

For a discussion of errors arising in cold fusion tests or experiments, note for example, the book, "Too Hot To Handle", by Frank Close. Pages 259-263 of this book set forth various errors that can occur, leading to the erroneous conclusion that excess power was produced in the cold fusion experiments. Page 261 of this book contains the telling statement:

"In addition to these experimental problems there were several examples where the numeral evaluation of the data and assessment of error were incorrectly or badly done or, in some cases, not done at all...

The DOE panel commented that there had been a noticeable lack of attention to the statistical assessment of errors, and that in some cases, where heat as being claimed, a group's claim of excess heat is not supported with results of sufficient precision to allow such a conclusion. More usually it is not possible to assess precision

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from reported results because the result is reported from a single run and no error bars are provided for the measured parameters....

The DOE panel noted: "Conclusions in this area simply cannot be accepted without a through assessment of the measurement errors. In its visits and conversations the members of the panel were struck repeatedly by the absence of critical assessments of this kind."

It was and it remains the examinees position that an undue amount of experimentation would be required to produce an operative embodiment of Applicant's invention. The examiner has cited numerous documents showing that experimenters having obtained negative results using various types of cold fusion apparatus, all based on the cold fusion concepts set forth by Fleischmann and Pons.

This issue of undue experimentation has been succinctly addressed by Douglas Morrison at the Fourth International Conference on Cold Fusion Technology, (ICCF-4) held Dec. 6-9, 1993 in Hawaii (reproduced in transaction of Fusion Technology vol. 26, Dec. 1994), see page 54 which states:

IX. WHEN A COLD FUSION WORKING DEVICE?

8 December 1993; the previous speaker, Dr. H. Fox, giving he said, a business man's point of view, declared he expected a working Cold Fusion device in 20 years.

November 1993, Dr. S. Pons said that by the year 2000 there should be a household power plant - 6 years.

1992, Dr. M. Fleischmann said a 10 to 20 Kilowatt power plant should be operational in one year.

July 1989, The Desert News published an article by JoAnn Jacobsen-Wells who interviewed Dr. S. Pons. There is a photograph in color, of Dr. Pons beside an simple apparatus with two tubes, one for cold water in and one for hot water out. This working unit based on Cold Fusion was described as "It couldn't take care of the family's electrical needs, but it certainly could provide them with hot water year-round" said Pons.

Later in the article it was written "Simply put, in its current state, it could provide boiling water for a cup of tea."

Time delay to this working model - Zero years.

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Thus it appears that as time passes, the delay to realization of a working model increases.

X. CONCLUSION

No conclusions are presented - everyone can judge for himself or herself. However some questions can be asked;

Are Cold Fusion results consistent in claiming Cold Fusion effects in Deuterium but not in normal Hydrogen, while other groups claim Cold Fusion effects with hydrogen?

Is the ratio of tritium to neutron production about unity as Fleischmann and Pons originally claimed [5] or is the ratio in the wide range 104-109 as most other workers claim?

Are transmutations, Black Holes, Biology [18] part of the normal world of Cold Fusion?

To explain the null experiments there is one theory-the conventional theory of Quantum Mechanics, but that are a widely variety of theories to explain positive Cold Fusion results - can they all be valid simultaneously - if not, which should be rejected?

Note that the examiner has held Applicant's disclosure to be insufficient and non-enabling for several reasons, including, the failure to set forth parameters of an operative embodiment of the invention, since those of ordinary skill in this art, do not know what these values should be (e.g. see page 13+ of the previous Office action).

The present case is considered analogous to that in *In re Chilowsky*, 134 USPQ 515 wherein the court held the disclosure to be insufficient. In the present case (despite Applicant's arguments to the contrary), the examiner has shown that various necessary parameters have not been provided and, the examiner has provided evidence that the artisan does not know the requisite parameters of an operative cold fusion system, nor how to make and use an operative cold fusion system.

Note in this respect, the Court's statement on page 519 of *In re Chilowsky*:

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"Chilowsky could not start to describe his invention with the assumption that those skilled in the art knew in detail how to build his nuclear reactor. Since it was a major part of what he purported to have invented, it was incumbent on him, under section 112, to tell how to build it, under principles of patent law too elementary to require discussion".

As noted above, applicant on page 75+ of the 12/02/02 response, states that some individuals have now been able to obtain positive results.

While some individuals have alleged the obtainment of positive results over the years since the initial public announcement by Fleischmann and Pons of their experiments in 1989, the scientific community in general still considers the alleged positive results as being based on experimental errors or misinterpretation of experimental data.

It is noted in this respect that there has essentially been a continuing stream of publications showing that virtually none of the scientific community consider the alleged positive results of cold fusion experiments as being confirmed. While being cumulative to the references already cited in said section 4 of the previous Office action, a representative sampling of said subsequent publications is set forth below. In this respect, Applicant's attention is directed to Merriman et al, Ewing et al, Albagli et al, Bosch et al, Balke et al, Fleming et al, Henderson et al, NOVA, Huizenga (I), Huizenga (II), Huizenga (III), Huizenga (IV), and Rogers et al. These references provide further clear evidence that no excess heat is generated in such "cold fusion" systems nor is there any evidence of nuclear reactions taking place.

There have been some Japanese claims of positive cold fusion results, however, note in this respect, the comments by David Williams in the Hadifeld article on page 10 of the 10/31/92 issue of New Scientist. David Williams (head of the department of

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chemistry of University College London) described in claims as "absolutely pie-in-the-sky".

The article by Williams et al refers to some of the spurious effects which have led to the claims of the existence of cold fusion. Note that Williams et al found no evidence of nuclear fusion in a non-equilibrium or pulsed system (e.g. see pages 378, 380, 383).

Note that in addition to Williams et al, the examiner has cited documents showing how experimental data, etc., can be misinterpreted as providing evidence of the operability of cold fusion systems.

In this respect, the television show on NOVA entitled, "Confusion in a Jar", indicated that in these cold fusion experiments, it is fairly easy to get quick results which could be "interpreted" as providing evidence of "cold fusion" but that in very carefully run experiments which were rechecked, etc., such as by using several different methods and/or detectors to attempt to detect the same presumed experimental results, the end result was negative.

Note the analysis of calorimetry with electrolytic cells of the Fleischmann and Pons type, set forth in Wilson et al.

In this same vein, note the negative comments in Morrison (III) regarding the claims by Fleischmann and Pons, of excess enthalpy in their cold fusion cells which were made to boil.

The Broad article in the 3/17/91 issue of the New York Times indicates some of the data relied on by Fleischmann and Pons as showing evidence of fusion was faulty.

The article by Taubes on pages 1299-1304 of the 6/15/90 issue of Science, explains why the alleged detection of tritium at Texas A & M cannot be relied on as evidence of "cold fusion" actually taking place.

Evidence of apparatus not working.

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The Dagani article in the 1/14/91 issue of C & EN states that the "cold fusion" claims are taken seriously by virtually none of the scientific community and that research at Utah's National Cold Fusion Institute (NCFI) as well as research elsewhere, have failed to establish the existence of cold fusion.

A more recent article by Dagani (in the 6/14/93 issue of C & EN) entitled "Latest cold Fusion Results Fail to Win over Skeptics", states that "the vast majority of scientists... dismissed the evidence of nuclear fusion results inside a metal lattice as nonsense - a case study in pathological science".

A more recent article by Dagani (in the 6/14/93 issue of C & EN) entitled "Latest cold Fusion Results Fail to Win over Skeptics", states that "the vast majority of scientists... dismissed the evidence of nuclear fusion results inside a metal lattice as nonsense - a case study in pathological science".

Note that Jones et al were also doing work on cold fusion involving the incorporation of deuterium into a hydrogen absorbing lattice. While Jones initially reported positive cold fusion results (the production of neutrons), and thus could be considered as a proponent of cold fusion, it is interesting to note some more recent statements by Jones on the issue of nuclear reactions and excess heat in these cold fusion systems.

This apparent transformation of Jones from a "cold fusion believer" to "skeptic" is discussed by Dagani in the June 5, 1995 issue of C & EN.

In a 1992 article in Surface and Coating Technology, Jones takes the position that the claims of excess heat, tritium and helium production due to nuclear reactions are "dubious to say the least" (note page 288) because there is no evidence of commensurate nuclear products. Note the reference to $E=mc^2$ on page 286.

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In the Taylor et al article (co-authored by Jones), which was submitted to the Fourth International Conf. On Cold Fusion (held Dec. 1993), it is stated in regard to the detection of neutrons from their cold fusion experiments, "The results do not provide compelling evidence of neutron production" (note particularly the abstract and pages 6, 7, 9, 10).

Jones et al (II) and Jones et al (III), in J. Phys. Chem, vol. 99, (1995) on pages 6966-6973 and, pages 6973-6979 respectively, set forth reasons why the alleged obtainment of excess heat in cold fusion systems, can not be relied on as valid.

Taubes, "Bad Science: The Short Life and Weird times of Cold Fusion", 1993, is a good reference for showing the view point of the scientific majority towards cold fusion. After interviewing over 250 people in the field, Taubes concluded that "Cold Fusion ... did not exist", and "As long as financial support could be found, the research would continue.... In fact, the few researchers still working in the field would have little incentive to acknowledge negative results as valid, because such recognition would only cut off their funds". Note page 426.

Another good reference presenting a compilation and analysis of cold fusion work subsequent to the 1989 announcement of the cold fusion claims of Fleischmann and Pons, is the book, "Cold Fusion: The Scientific Fiasco of the Century", by Huizenga (I). Huizenga was co-chairman of the DOE/ERAB panel on cold fusion. Note particularly the "Epilogue" on pages 237-287 which discusses some of the alleged positive results presented at the First, Second and Third Conference on Cold Fusion. Jones (referred to above) refers to Huizenga's book as "factual and hard hitting... The continuing cold fusion saga is a fascinating one from a human point of view, and Huizenga tells it well... I recommend Huizenga's book to all" (see the back cover and, page 105 of Huizenga (I)).

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On pages 201+(and more particularly, page 214) Huizenga (I) indicates cold fusion can qualify or be characterized as "pathological science", defined as "the science of things that aren't so" (see also Huizenga (II), Huizenga (IV), Morrison (II and Rousseau in this respect).

On page 206, Huizenga (I) states that some of the similarities between cold fusion and other unsubstantiated concepts, are:

- 1 Lack of control experiments,
- 2 statistical uncertainties,
3. irreproducibility and
4. the public description as a "simple experiment"

Note particularly pages 125, 222, 223, of Huizenga (I) which refer to the lack of reproducibility of the alleged "positive" cold fusion results.

Clearly if something cannot be reproduced at will, there is also, then, no enabling disclosure which would enable one of ordinary skill in the art, to make and use it, as required by statute (35 USC 112).

For an even more up to date analysis of the work in this cold fusion field, attention is directed to the MEMO (dated 10/9/97) from Bennett Miller to Dr. Robert W. Bass.

The Miller Memo indicates Dr. Bass had requested the Department of Energy to do a new, full-scale review of the Cold Fusion/Low Energy Nuclear Transmutations (CFALENT) phenomena because of what Dr. Bass considered to be "emerging evidence of progress".

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The Miller Memo indicates DOE's response was to commission Mr. Miller to do the review.

Page 3 of the Miller Memo indicates the vast amount of documents, etc. reviewed and considered by Miller in arriving at his conclusions.

Basically, the conclusion of the Miller Memo is that there is still no concrete evidence of excess heat, etc. Note particularly the following excerpts from the Miller Memo.

"The core problem that I have with CFALENT is the disconnect between the public pronouncements of it's proponents regarding the imminent commercial availability (nay, already established commercial availability if I am to believe the press clippings) of such systems and the somewhat more private and negative developments that seem to emerge at every turn.

Most prominent, but still only three among many such examples of the former, are first, the Cincinnati Group's recent representations regarding a revolutionary approach to the nuclear waste remediation problem --- representations that you openly endorsed as revealed truth; second CETI's equally bold guarantee of a CF cell that put out aneutronic, excess heat on a reliable, predictable basis. And third, your vouching to me, some time ago, for the imminent, commercial installation and operation of a CF power system in a hotel/resort complex that is currently under construction.

Moreover, the casual reader, picking up any issue of Infinite Energy, for example, would be hard pressed not to conclude the CFALENT is a closed matter as far as demonstrating scientific feasibility is concerned. Around the world, governments and industries are successfully demonstrating the phenomena of excess heat, at the very least. If so, no further development, let alone research, is needed or desired. What possible should or could your governments' federal research and development community play when its charter is to support primarily that work that the private sector can not or will not do on its own?

At the same time of course, more careful attention to what is going on suggests that not all is what it seems to be. The CG approach to nuclear transmutation is at best mired in controversy of the most basic sort. There is no verification of initial claims. There is no explanation of the basic process. A recent attempt to verify the process by a third party in one of DOE's national laboratories was, in everyone's opinion, a failure; though it can be argued that the test were inconclusive for a number of reasons. The CETI cell has similar problems. The hotel project with the 500 kw CF power plant, about which you we were so enthusiastic, has been delayed indefinitely. And, the Japanese have terminated their three-year multi-million dollar effort to demonstrate and commercialize cold fusion.

Perhaps this evidence that all is not well can be explained by sloppy science, or just complicated science, or financial difficulties unrelated to science, or by

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governmental mismanagement, or by pressure to move in different directions, though in the case of Japan that is hard to believe. Your assertion that the Japanese government has applied pressure internally to disband the effort flies in the face of all logic.

If any nation accords energy matters a higher priority than the Japanese, I do not know of it. If cold fusion is real, demonstrable, or reproducible it would mean more to the Japanese than any other industrialized nation. It would be a harbinger of the ultimate energy security that they have been seeking for the past 70 years -- a security of energy supply that was one, if not the most, important determinant of their willingness to go to war in 1941. What possible motive could there be to disbanding an effort that advocates of CF/LENT expected to succeed, except that perhaps it was not?

In fact it is my current understanding that the NHE program was disbanded precisely because it could not meet its primary objective of a concrete demonstration of excess heat, even after three years of work and an expenditure of over \$30 million. There have been claims made that the effort was poorly managed -- that emphasis was incorrectly given to building a precommercial infrastructure at the expense of doing the science that needed to be done. If so, that is truly a sad state of affairs. But if it is true, I believe it will be corrected in fairly short order if for no other reason than that the stakes are so large. Nonetheless, the effort by a major industrial nation to mount a successful, ministry-sponsored, CF program can not be characterized as any thing other than a failure at this point.

This line of inquiry brings us back to the fundamental dilemma. If CF/LENT is as real as some of the scientific results presented at respected scientific meetings (or as real as its press clippings), then it is already well beyond the stage where federal tax dollars are needed. It is a commercial reality, or so close that the private sector should be jumping at the business opportunity of a lifetime-- the opportunity to capitalize on a discovery of momentous proportions that is relatively uncluttered by government claims to prior knowledge or prior invention.

If on the other hand CFALENT is still in the nascent stage where nothing is really clear and where the prospect still exists that all is artifact and anecdote, then there is only one prudent course for practitioners to follow -- go back to basics and systematically subject the phenomena to careful examination by the time-tested process of merit-based, peer-review.

I believe, as I have already stated, that I think there are good things to be done in this arena. New ground to be broken. New discoveries to be made. New industries created. But only after the basic science has been illuminated and accepted by the scientific community at large. That is how we, as a nation, have built the greatest scientific establishment in the world. I urge you and your colleagues to accept the challenge. Come forward. Present proposals. Abide by the process."

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It is also noted that there has apparently been a court decision on cold fusion in Italy (e.g. see Italy-Cold Fusion & Judge's Verdict).

Accordingly, the references cited above and in said section 4 of the previous Office action are considered as providing irrefutable evidence of the inoperability of a "cold fusion" system of the type set forth by Fleischmann and Pons, as well as that of applicant. Applicant has not shown this evidence to be in error.

Note that these references cited by the examiner show how experimental data, etc. can be misinterpreted as providing evidence of the operability of cold fusion systems.

Accordingly, all of the issues set forth in said section 4 of the previous Office action regarding lack of enablement are still pertinent in determining the patentability of Applicant's claims.

The Board decision in Ex parte Dash, 27 USPQ 2d 1481 is considered pertinent here.

"The Board in Ex parte Dash, held that the examiner did not error in rejecting claims for "cold fusion" of nuclear energy for lack of enablement under 35 USC 112, and as inoperative and lacking utility under 35 USC 101, since evidence demonstrating that neither excess heat nor traditional nuclear by products of fusion reaction have been detected by careful researchers conducting experiments under conditions that are highly analogous to Applicant's' electrolytic cell, and demonstrating relative ease with which erroneous results can be achieved by failing to observe strict experiment design controls shifted burden of proof to Applicant's, and Applicant's failed to produce any evidence to overcome examiner's position."

New claim 21 recites a limitation of "distributing said isotope of hydrogen within said loaded metal." There is neither a written description nor an enabling disclosure as to how and in what manner so-called "distribution" is achieved. Note that the claim language implies that any combination of non-parallel first and second electric fields,

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regardless of voltage magnitude, would effect so-called distribution, i.e., even as low as a 1 picovolt.

New claims 24, 26 and 28 recite the limitation of "having said redistribution of said isotopic fuel impact a barrier impermeable to said isotopic fuel." There is neither a written description nor an enabling disclosure of: a) what exactly is meant by the term, "impact"; b) how and in what manner such redistribution causes the so-called impact a fuel-impenetrable barrier; c) how, where and in what manner is said barrier disposed.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 1, 5-8, 10-14, and 21-30 are rejected under 35 U.S.C. 101 because the claimed invention as disclosed is inoperative and therefore lacks utility for the reasons set forth in section 4 of the previous Office action, as well as the reasons given in section 4 above.

Note the discussion of Applicant's arguments in section 6 above.

As pointed out in sections 4 and 6 above, Applicant's invention involves a concept or expedient that has become known in the art as "cold fusion".

Accordingly, the documents cited by the examiner in regard to the inoperability and lack of utility of such "cold fusion" systems, are clearly germane to the patentability of Applicant's claims. As pointed out in section 6 above, the examiner has provided

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reasons why Applicant's arguments are not sufficient to overcome the documentary evidence provided by the examiner.

Applicant's attention is directed to page 89 of Huizenga (I). Said page 89 reproduces the conclusion of the final report of the DOE/ERAB panel on cold fusion. Conclusion (1) states that there is no "convincing evidence that useful sources of energy will result from the phenomena attributed to cold fusion".

Applicant's attention is directed to the case law on page 16, of the previous Office action, in support of the examiner's "position" that where the utility of the claimed invention is based upon allegations that border on the incredible or allegations that would not be readily accepted by a substantial portion of the scientific community, sufficient substantiating evidence of operability must be submitted by applicant.

The above "position" which is well supported by case law, is considered as clearly being applicable against Applicant's claimed invention, particularly in view of the comments in the articles cited above and in the previous Office action, concerning the inoperability (and hence lack of utility) of such "cold fusion systems".

Claim Rejections - 35 USC § 112

8. Claims 1, 5-8, 10-14, and 21-30 are rejected under 35 U.S.C. 112, first paragraph, for the reasons given in the objection to the specification, in section 6 above.

9. Claims 8, 10, 13, 24, 26 and 28 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed

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invention. The new subject matter and reasons why they are such are discussed in section 5 above.

10. Claims 1, 5-8, 10-14, and 21-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 10 and 21 are vague, indefinite and incomplete as to what is actually the product. **(Note this specific rejection that applied to previous claims 1-14 was not addressed in Applicant's response to the previous Office Action).**

Claims 5 and 22 recite the limitation "the group". There is insufficient antecedent basis for this limitation in the claims.

Claim 21 recites in the preamble a method to effect **redistribution** of said isotope of hydrogen, whereas the body of the claim recites "thereby distributing said isotope of hydrogen within said loaded metal." It is unclear which of the recited steps produces the isotope redistribution.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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8. Claims 1, 5-8, 10-14 and 21-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Westfall (U.S. 5,215,631).

Westfall discloses a process for growing crystals by electrodeposition. He teaches that his invention has use in growing palladium, titanium and other metal crystals for "cold fusion" electrodes (e.g., see column 1, lines 36+, column 2, lines 37+, and column 3, lines 32+). His method uses the electrolytic apparatus shown in Fig. 1 comprising a bath (4) between a working electrode 8 (where the crystal growth occurs) and a counter electrode (which replenishes the electrolytic solution's concentration of ions of the to-be-deposited material. The bath is used by passing current between the working and counter electrodes (e.g. see column 4, lines 25+). Westfall further discloses that palladium can be deposited from the more common aqueous systems (see column 7, lines 25+). Table 1 lists metals that can be grown from an aqueous solution, including palladium, and the more common anion and cation components. He teaches that hydrogen is generated in an aqueous system (e.g. see column 9, lines 32+).

Westfall further discloses the use of orthogonal electric fields as part of the nucleation manipulation techniques for crystal growth control. He states that orthogonal electric fields are generated by the use of "conformal" counter electrodes with configurations such as wire-tubular, sphere-spherical, cube-cubical torus-toroidal, etc. (see column 24, lines 11+).

Westfall also discloses conformal electric fields may be used in combination with one or more nucleation manipulation techniques, such as magnetic fields (see column 24, lines 55+).

Note that applicant's claimed "isotopic fuel" reads on the hydrogen generated by Westfall's aqueous solution and his "material" reads on Westfall's "working electrode."

Note that claims 1 and 10 do not recite sequential application of electric fields. As to new claim 21, a sequential application of electric fields read on Westfall's aqueous electrochemical process. The electric field resulting from application of a voltage between the working electrode and counter electrode, which reads on applicant's "first electric field", primarily causes the movement of ions (including hydrogen ions) from the bath to the working electrode.

This process reads on applicant's "loading isotopic fuel to the material." Westfall also discloses that the orthogonal fields, which result from a conformal counter electrode configuration, provide control of nucleation (see column 24, lines 1+). He further discloses that nucleation controls growth of crystals (e.g., see column 5, lines 1+). Conformal electric fields result in near uniform intensities and near uniform ion diffusion distances promoting superior deposition system stability (e.g., see column 24, lines 30+). Therefore, the orthogonal field resulting from a conformal counter electrode configuration and its beneficial effect on crystal formation read, respectively, on applicant's "second electric field" and its effect of "redistribution of the fuel within the material." Clearly, the first electric field must first effect movement of ions from the

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electrolytic bath towards the working electrode before the orthogonal electric field can effect control of distribution of these ions to form the desired crystal growth.

Note further that claims 8 and 13 are anticipated by Westfall's method that provides for application of magnetic field, in addition to electric fields (e.g. see column 24, lines 59+). As to the specific limitation of a "spatially inhomogeneous magnetic field," any applied magnetic field will have "spatial inhomogeneity" because of inherent imperfections in the material (e.g., non-uniform crystal structure) or the source of the magnetic field (e.g., if an a.c. electrical source produces the magnetic field, any voltage fluctuations, which inherently always occur, will cause inhomogeneity in the magnetic field. Applicant's claim language reads on such.

As to claim 14, note that the Westfall's working electrode can either be a cathode or an anode (see column 4, lines 26 and 27).

Note that the Applicant traversed the use of Westfall because: a) his application was filed prior to Westfall; b) it does not disclose loading; c) it does not have the following features: means to control the distribution, means including barriers impenetrable to flow of isotopic fuel, three separate connections for the applied field intensities; cathode divided into parallel slabs; second electric field directed through pairs of barriers and electrode to enhance the desired reactions; com-shaped impermeable barriers; d) it requires other components that are not needed in the claimed invention; e) the applied field are synchronous whereas the fields in the claimed invention are metasynchronous; f) hydrogen is formed outside the electrode in Westfall and not inside; g) Westfall does not produce heat unlike the claimed invention.

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The Examiner disagrees for the following reasons:

a) Westfall (U.S. 5,215,631) is a continuation-in-part of S/N 514,192, April 25, 1990, which is more than one year prior to the claimed filing date of 9/17/91 for the parent application, S/N 07/760,970..

b) Westfall discloses palladium as working electrode and the electrolyte is an aqueous solution that inherently contains some deuterium. Palladium is known in the art to absorb deuterium. Applicant himself admits to this well-known, scientific fact by his claims.

c) The features cited by the Applicant are non-limiting because they are not recited in the claims. Note that although claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

d) See item c) above.

e) See discussion on claim 21 above.

f) See item b) above.

g) The limitation regarding heat is not disclosed in the claims. See also item c) above. Nonetheless, Westfall's process inherently produces heat, e.g., joule heating.

As to the limitation in the claims regarding an alternating barrier to the isotopic fuel, palladium is known in the art to contain gold as an impurity. Gold is a hydrogen isotope barrier as the Applicant himself admits (see claims in the parent application). Therefore, when the palladium coating is formed on the working electrode, inherently

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gold will also be deposited. Operation of the Westfall's apparatus and process will inherently also produce alternate coatings of material containing the barrier gold.

The "thereby" clauses in claims 1, 10 and 21 is a language that suggest or makes optional but does not require steps to be performed and does not limit a claim to a particular structure, does not limit the scope of a claim or claim limitation. See MPEP 2106.II.C.

9. Claims 1, 10, 11, 21, 22, and 24-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Kinsella et al.(U.S. 3,682,806). Kinsella et al. disclose a process for electroplating metallic articles with carboxylic film-forming materials utilizing lithium hydroxide as solubilizer (see Fig. 1 and column 8, 2nd paragraph). Fig. 1 shows the anode (4), which is the material to be coated, a stainless steel cathode (6). An alternative embodiment can have an auxiliary platinum anode (7) and an auxiliary stainless steel cathode (8). The electrodeposition current flows from the anode (4) to the stainless steel cathode (6). An auxiliary direct current (referred to as "regeneration current") is applied between the auxiliary electrodes, the direction of the current being orthogonal to the direction of the electrodeposition current (see column 9, lines 65+). Note that applicant's "isotopic fuel" in the claim language reads on the lithium anions that form on the anode, "material" reads on "anode", and "orthogonal electric fields" reads on the orthogonal fields produced by the electrodeposition current and the regeneration current.

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Note that the Applicant traversed the use of Kinsella because: a) it uses stainless steel cathode; b) it does not disclose loading; c) it requires other components that are not needed in the claimed invention; d) it does not disclose application of the second applied electric field intensity after full charging has been achieved; e) it delivers the charging current into the bath instead of the cathode.

The Examiner disagrees for the following reasons:

a) Stainless steel contains nickel, and nickel or its alloys is disclosed by the Applicant as acceptable material (see claim 6).

b) Nickel is known in the art to absorb deuterium. Applicant himself admits to this well-known, scientific fact by his claims.

c) The features cited by the Applicant are non-limiting because they are not recited in the claims. Note that although claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

d) "Full charging" is not a limitation recited in the claims. All of the claims recite the term "loading" not "full charging." See item c) above

e) Claims do not recite how the charging current is to be delivered. See item c) above.

As to the issue of alternating barriers and thereby clauses, see section 8 above. The other items raised by the Applicant regarding Kinsella are the same as those discussed in section 8 above.

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1, 5-7, 10-12, 14 and 21-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Cedzynska et al. (WO 93/01601) or Edwards (WO 90/15416) in view of Westfall. Either one of Cedzynska et al. or Edwards et al. disclose the applicant's claims except for the orthogonal electric fields.

Cedzynska et al. disclose a method for electrolytically loading isotopic hydrogen into a palladium or palladium alloy electrode by alternately charging and discharging the electrode in a plurality of cycles, each cycle including charging of the electrode with isotopic hydrogen approximately to a saturation level and then discharging the electrode to a predetermined retention level see Abstract, page 9 and Fig. 1).

Edwards disclose a method for production of thermal energy comprising passing an electric current through electrodes immersed in a liquid electrolyte containing a higher isotope of a low atomic weight atom and applying a magnetic influence to the electrolyte or one or each electrode. The electrolyte may contain lithium and the electrode can be palladium or titanium (see Figs. 1 and 2, and claims).

As discussed in section 8 above, Westfall discloses an electrodeposition process using orthogonal electric fields.

One having ordinary skill in the art would have recognized that the method and apparatus of Cedzynska et al. or Edwards are similar to that of Westfall, in terms of having an electrochemical means of depositing a light element such as hydrogen into a metal such as palladium. He would have also recognized that application of orthogonal electric fields is advantageous because it provides better control of the process.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method, as disclosed by either one Cedzynska et al. or Edwards, by the teaching of Westfall, in order to obtain a method of producing and controlling the production of a product using a material loaded with an isotopic fuel, comprising: a) supplying said isotopic fuel to said material; b) loading said isotopic fuel into said; and c) applying sequentially two orthogonal electric fields, to gain the advantages thereof, because such modification is no more than the use of conventional techniques within the nuclear art.

11. Claims 8 and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Cedzynska et al. in view of Westfall, as applied to claims 1, 5-7, 10-12, 14 and 21-30 above, and further in view of anyone of Edwards, Sadoway (WO 91/06959) or Van Noorden (NL 8909-962-A) or Dufour (WO 91/01036). The combination of Cedzynska et al. and Westfall disclose the applicant's claims except for the use of magnetic fields in fusion.

Anyone of the cited secondary references cites the application of a magnetic field as part of a claimed electrolysis-nuclear fusion process. See for example page 2 of Westfall, abstract and claims of Sadoway, abstract of Van Noorden, and page 8 of

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Dufour. One having ordinary skill in the art would have recognized the claimed advantage of applying a magnetic field to enhance a purported nuclear fusion process.

As to the limitations regarding creating a gradient in the intensity of magnetic field and having an inhomogeneous magnetic field, any magnetic field applied across any material will inherently produce a gradient in the intensity of said field within the material. As to the spatial inhomogeneity of said field, as stated in section 8, any applied magnetic field will have "spatial inhomogeneity" because of inherent imperfections in the material (e.g., non-uniform crystal structure) or the source of the magnetic field (e.g., if an a.c. electrical source produces the magnetic field, any voltage fluctuations, which inherently always occur, will cause inhomogeneity in the magnetic field. Applicant's claim language reads on such.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the Cedzynska et al. – Westfall combination, by the teaching of anyone of Edwards, Sadoway, Van Noorden or Dufour to have a magnetic field, in addition to the orthogonal electric fields, in order to gain the advantages thereof, as this is no more than the application of well-known techniques in the nuclear art.

Applicant's traverse of Edwards, Sadoway, Van Noorden and Dufour are not convincing for reasons similar to those described in sections 8 and 9 above. Additionally, the use of either one of Cedzynska or Sadoway is appropriate because either one of them is known and published before the applicant's parent application.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 703-306-5756. The examiner can normally be reached on 7:00-4:30, Mon-Fri; 1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 703-306-4198. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

RJP
January 27, 2003



MICHAEL J. CARONE
SUPERVISORY PATENT EXAMINER